



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,503	08/14/2001	Santiago Rodriguez	10014545-1	8089

7590 06/08/2006

HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, CO 80527-2400

EXAMINER

LEE, TOMMY D

ART UNIT PAPER NUMBER

2625

DATE MAILED: 06/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/928,503	<b>Applicant(s)</b> RODRIGUEZ, SANTIAGO	
	<b>Examiner</b> Thomas D. Lee	<b>Art Unit</b> 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-3, 7-9 and 12-15 is/are rejected.  
7) ☒ Claim(s) 4-6, 10, 11 and 16-20 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office action is responsive to applicant's amendment filed March 9, 2006.  
Claims 1-20 are pending.

### ***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1, 2, 7, 8 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,709,250 (Takeuchi) in view of U.S. Patent 5,581,358 (Seto).

Regarding claims 1 and 2, Takeuchi discloses a method for correcting a half tone pulse width count, the method comprising: determining the half tone pulse width count (pulse width modulation signal having width T3 utilized as reference modulation signal, another pulse width may be used as reference if pulse width thereof is shorter than the pulse width for one picture element of a black modulation signal (column 3, line 54 – column 4, line 22)); determining a half tone level (surface potential of scanned photosensitive member detected (column 4, lines 46-51)); and calculating a corrected half tone pulse width count based on the half tone pulse width count and the half tone level (modulation pulse width for forming halftone image selected in response to detected surface potential and reference pulse width modulation signal (column 4, lines 51-55; column 4, line 63 – column 5, line 58)). At least one of the half tone pulse width count, the half tone level and the corrected half tone pulse width count may be

Art Unit: 2625

determined for one or more of a pixel, a line, a page, a print job, and a usable lifespan of a toner cartridge (operation of control mode of determining corrected halftone pulse width count (Fig. 3) may be performed between adjacent paper feedings (column 6, lines 14-26)).

Regarding claims 12-15, Takeuchi discloses an apparatus for correcting a half tone width count comprising: a processor system configured to determine the half tone pulse width count, wherein the processor system is further configured to determine a half tone level for the one or more pixels and wherein the processor system is further configured to calculate a corrected half tone pulse width count based on the half tone pulse width count and the half tone level (CPU 20 (Fig. 1) controls determination of a corrected pulse width count as set forth above (column 4, lines 31-59)). The processor system comprises at least one processor associated with one or more of a PC, a print spooler, a printer and a network component, the processor system an application specific integrated circuit contained within the printer (CPU 20 inherently comprising application specific integrated circuitry, associated with an image forming apparatus (Fig. 1)). The processor is further configured to determine a pulse width count for one or more substantially solid pixels within a print job (noting Fig. 4, period q is a black level image portion of three picture elements (column 6, lines 39-53)).

Takeuchi does not disclose the half tone pulse width count being a measure of the accumulated widths of a plurality of pulses associated with the printing of a plurality of half tone dots, as now recited in base claims 1 and 12. Seto discloses an information recording apparatus, wherein data of a black pixel which is not subjected to smoothing

Art Unit: 2625

is recorded while saving toner by controlling the print pulse width or the print pulse number upon recording of the black pixel on the basis of a print density command (abstract). Noting, for example, Figs. 54A-54E (especially 54C and 54D), the accumulated widths of plural pulses within a pixel are increased corresponding to an increase in density level. This feature enables the apparatus to maintain high print quality at areas requiring smoothing, while at the same time decreasing to consumption amount of toner (column 25, line 42 – column 26, line 4). Takeuchi does not provide a feature for decreasing the amount of toner used, and thus it would have been obvious for one of ordinary skill in the art to modify the teaching of Takeuchi by providing such a feature, as disclosed in Seto, so that toner consumption, and thus printing costs associated therewith, may be decreased.

Applicant asserts that as Seto discusses increasing the accumulated widths of plural pulses within a pixel, Seto therefore does not disclose “an accumulation of a plurality of pulse widths associated with the printing of a plurality of half tone pixels let alone a half tone pulse width count that is a measurement of such an accumulation.” (see applicant’s response, at page 8, first paragraph). However, the recitation, as now recited in the claims, reads on Seto, because plural print pulse widths are controlled for a plurality of black pixels not subjected to smoothing (comparing Fig. 63A and Figs. 63B – 63D; Fig. 66A and Figs. 66B – 66D, pulse widths are clearly controlled for more than one pixel).

Regarding claims 7 and 8, Takeuchi in view of Seto does not disclose a computer readable medium on which is embedded program instructions capable of

Art Unit: 2625

automatically correcting a halftone pulse width count by performing the steps of above-rejected claims 1 and 2. However, it is well known in the art that any imaging process that uses a CPU is capable of receiving program instructions within a computer readable medium for performing the imaging process, thereby enabling a user to perform the process on a computer, without the need for specific processing hardware. Therefore, it would have been obvious for one of ordinary skill in the art to provide program instructions in a computer readable medium for automatically performing the steps in the rejected claims.

4. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Seto as applied to claims 1 and 7, respectively, above, and further in view of U.S. Patent 5,617,216 (Wada).

Takeuchi in view of Seto does not disclose the use of one of a statistical regression equation and a lookup table for the calculating step, as recited in claims 3 and 9. Wada discloses a method whereby a pulse width in a lookup table is generated on the basis of a gradation value of an objective pixel (column 5, lines 4-16). The use of a lookup table provides a less complicated means for obtaining a pulse width by eliminating the need for performing mathematical operations necessary in Takeuchi for determining the corrected halftone pulse width count. Therefore, it would have been obvious for one of ordinary skill in the art to provide a lookup table, such as disclosed in Wada.

***Allowable Subject Matter***

Art Unit: 2625

5. Claims 4-6, 10, 11 and 16-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: No prior art has been found to disclose or suggest a lookup table based on the statistical regression equation, used in the step for calculating a corrected halftone pulse width count based on the halftone pulse width count and the halftone level, as recited in claims 4 and 10, or the combined steps of determining a pulse width count and calculating a toner usage value based on the pulse width count and the corrected halftone pulse width count, as recited in claims 5, 11 and 16. Claim 6 and 17-20 depend from claims 5 and 16, respectively.

### ***Response to Arguments***

6. Applicant's arguments filed in response to the rejection of the above claims as set forth in the prior Office action have been fully considered but they are not persuasive.

Applicant asserts that "[t]he simple statement that Seto discusses increasing the accumulated widths of plural pulses within a pixel corresponding to an increase in density level does not mean that Seto teaches a variable that is a measure of the accumulated width of two or more pulses associated with the printing of half tone pixels." (see applicant's response, at page 7, last paragraph). Applicant goes on to assert that as Seto discusses increasing the accumulated widths of plural pulses within a pixel, Seto therefore does not disclose "an accumulation of a plurality of pulse widths

Art Unit: 2625

associated with the printing of a plurality of half tone pixels let alone a half tone pulse width count that is a measurement of such an accumulation.” (see applicant’s response, at page 8, first paragraph). However, as mentioned above, the recitation, as now recited in the claims, reads on Seto, because plural print pulse widths are controlled for a plurality of black pixels not subjected to smoothing (comparing Fig. 63A and Figs. 63B – 63D; Fig. 66A and Figs. 66B – 66D, pulse widths are clearly controlled for more than one pixel).

Applicant asserts that the remaining rejected claims are allowable “[f]or at least the same reasons Claim 1 is patentable,” (see applicant’s response, at page 8, third through sixth paragraphs) or “[f]or at least the same reasons Claim 7 is patentable.” (see applicant’s response, at page 9, first paragraph). However, applicant’s arguments with respect to claims 1 and 7 are not persuasive, and thus the rejections are maintained.

### ***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of




Art Unit: 2625

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Lee whose telephone number is (571) 272-7436. The examiner can normally be reached on Monday-Friday, 7:30-5:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (571) 272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Thomas D Lee  
Primary Examiner  
Technology Division 2625

tdl  
June 7, 2006